Abstract

A long-lasting retaining ring for wafer carriers used in chemical mechanical planarization. A groove is disposed around the retaining ring, with the groove opening facing the mounting plate. A ridge is disposed in the groove. A bladder is disposed in the groove and is pressed between the ridge and the mounting plate. Pressure in the bladder can be maintained or adjusted to deform the bladder and thereby force the retaining ring onto the polishing pad as the retaining ring is worn. Prior to adding pressure to the bladder, the ridge forces the bladder to very closely conform to the dimensions of the groove. Thus, during use, bladder deformation is not wasted on conforming the bladder to the groove shape, but instead can be used to force the retaining ring further in the direction of the pad. The ridge thereby increases the distance the retaining ring can move towards the pad.